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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Atty Docket No. A01325

Appl No.: 10/719,167

Art Unit: 1713

Applicant: Ching-Jen Chang et al.

Filed: November 21, 2003

Examiner: Peter D. Mulcahy

Title: Multi-Stage Polymer Compositions Having a Triggered Response

Mail Stop Appeal Brief - Patents

Commissioner for Patents

P.O. Box 1450

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Amended Appeal Brief (17 pages)

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GROUP ART UNIT: 1713

APPEAL NO. \_\_\_\_\_

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

APPEAL BRIEF (Amended)

In re the Application of Ching-Jen Chang et al.

Filed: November 21, 2003

Serial No. 10/719,167

For: MULTI-STAGE POLYMER COMPOSITIONS HAVING A TRIGGERED  
RESPONSE

Kenneth Crimaldi  
*Attorney for Appellants*

Peter D. Mulcahy  
*Examiner*

Enclosed:  
Transmittal Form

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Ching-Jen Chang et al. :

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Application No.: 10/719,167

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Group No.: 1713

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Filed: November 21, 2003

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For: MULTI-STAGE POLYMER COMPOSITIONS HAVING A TRIGGERED  
RESPONSE

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

**APPEAL BRIEF (Amended)**

This is an appeal from the rejection dated June 2, 2006 finally rejecting claims 1, 3, 5 and 10. The rejected claims are set out in Appendix J. Appellants filed a Notice of Appeal pursuant to 37 C.F.R. § 1.191 on August 15, 2006. The original Appeal Brief filed August 18, 2006 has been amended herein to address the objection raised in the Notification of Non-Compliant Appeal Brief mailed November 15, 2006.

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**(C) Real Party In Interest**

The owner of the present application and the invention contained therein is  
ROHM AND HAAS COMPANY.

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**(D) Related Appeals, Interferences or Judicial Proceedings**

No appeals, interferences or judicial proceedings are known to Appellants, the Appellants' legal representative, or the assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

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**(E) Status Of Claims**

The status of the claims is as follows:

Claims pending: 1, 3, 5 and 10

Allowed claims: none

Claims objected to: none

Claims canceled: 2, 4 and 6-9

Claims rejected: 1, 3, 5 and 10

Claims on appeal: 1, 3, 5 and 10

Claims withdrawn from consideration by the Examiner: none.

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**(F) Status Of Amendments**

Appellants have not filed an amendment after final rejection in the present application.



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**(G) Summary of Claimed Subject Matter**

**Claim 1:** The present invention provides a triggered response barrier composition [page 4, line 25] comprising: one or more multi-stage emulsion polymers [page 7, lines 19-21] that comprise (a) 70-99 weight percent of an alkali soluble/swellable emulsion polymer as a first stage; and (b) 1 to 30 weight percent of a more cross-linked alkali soluble/swellable emulsion polymer or a non- alkali soluble/swellable emulsion polymer as a second stage [page 4, lines 8-11]; wherein the multi-stage emulsion polymer surrounds, encapsulates or forms a matrix with one or more active ingredients [page 4, lines 27-28] and the multi-stage emulsion polymer disperses, disintegrates, dissolves, destabilizes, swells, deforms, softens, flows or combinations thereof, releasing the one or more active ingredients to an aqueous system as a result of a change in ionic strength of the aqueous system [page 4, line 30 to page 5, line 3].

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**(H) Grounds of Rejection to be Reviewed on Appeal**

Claims 1, 3, 5 and 10 stand rejected on the ground of nonstatutory obviousness-type double patenting over claims 1 and 3-10 and 1, 3, 9 and 10 of copending Application Nos. 10/348,375 and 10/619,061, respectively. Claims 1, 3, 5 and 10 stand rejected under 35 U.S.C. § 103(a) as being obvious over Sonnabend (U.S. Pat. No. 4,384,096) or Gassenmeier et al. (U.S. 2001/0031714).

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(I) Argument

Regarding whether or not claims 1, 3, 5 and 10 are unpatentable over the aforementioned references:

(a) The Cited References Fail to Suggest at Least One Limitation of the Present Claims

(i) 35 U.S.C. § 103(a) rejection over Sonnabend or Gassenmeier et al.

All claim limitations must be taught or suggested in the prior art. *In re Royka*, 490 F.2d 981 (C.C.P.A. 1974). At least three key limitations of independent claim 1 are not taught or suggested in any of the cited references, namely: (i) "multi-stage emulsion polymers;" (ii) "70-99 weight percent of an alkali soluble/swellable emulsion polymer as a first stage;" and (iii) "1 to 30 weight percent of a more cross-linked alkali soluble/swellable emulsion polymer or a non- alkali soluble/swellable emulsion polymer as a second stage." The references do nothing to suggest the use of any multi-stage emulsion polymers, much less the specific limitations on Appellants' polymers, as quoted above.

The final Office Action asserts only that the polymers recited in the claims "overlap in scope" with those of the references as to their constituent monomers, and that the prior art polymers "share the same structure and composition as those claimed."

However, the present claims recite "multi-stage emulsion polymers," i.e., polymers produced by sequential polymerization in stages, during which different monomer mixtures are added, producing a polymer whose surface composition differs from its internal composition (see present application, p. 7, line 19 to p. 8, line 5). The claims also recite a first stage which is "70-99 weight percent of an alkali soluble/swellable" polymer, and a second stage which is "1 to 30 weight percent of a more cross-linked" polymer. None of the references discloses or suggests any kind of multi-stage polymer, much less one having the particular first and second stages recited in the present claims.

Sonnabend discloses "an aqueous emulsion copolymer of" three types of monomers (Col. 2, lines 5-56). Nowhere in this description is there any suggestion of

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separate stages or varying monomer compositions during polymerization, and the polymer is referred to simply as a "copolymer" of the constituent monomers. Columns 6 and 7 describe copolymerization and copolymer properties, again without referring to stages or varying monomer composition. Blending of different copolymers is suggested at column 6, lines 61-64, but this refers to two separate polymers, not a single multi-stage polymer. Moreover, Example 2 describes the "typical procedures" for preparation of the polymers, and lists a single "monomer mix" containing all of the monomers.

Likewise, Gassenmeier, et al. discloses copolymers without suggesting separate stages or varying monomer composition (paragraphs [0060]-[0061]). The copolymer is made "by copolymerizing conventional basic monomers" of three types (paragraphs [0186]-[0189]). No details are provided as to the polymerization process, and there is no suggestion anywhere of polymerization in separate stages. Therefore, neither Sonnabend nor Gassenmeier, et al. can suggest the multi-stage polymers recited in the present claims.

(ii) Obviousness-type double patenting rejection over copending Application Nos. 10/348,375 and 10/619,061

Finally, none of the claims of the cited copending applications discloses or suggests the multi-stage polymers recited in the present claims. Therefore, Appellants respectfully submit that the invention as presented herein is patentable over the prior art of record.

(b) The Cited References Fail to Provide a Motivation to Modify Their Disclosure

A *prima facie* case of obviousness requires that the cited references provide a motivation to modify their teachings to produce the claimed invention. *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000). The Advisory Action mailed August 7, 2006 acknowledges that the references are "silent to 'multi-stage' polymerization," but asserts that multi-stage polymers are "within the scope of the teaching of the art and rendered *prima facie* obvious."

Nothing in the references suggests use of multi-stage emulsion polymerization, much less the particular first and second stages recited in the present claims. Sonnabend

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describes "typical procedures for the preparation of the liquid emulsion polymers" (Example 2), in which all of the monomers are contained in a single mixture, so that the variation in monomer composition required in multi-stage polymerization would be impossible. Gassenmeier et al. contains no specific disclosure of any polymerization process. Neither reference, nor the claims of the cited copending applications, provide the required motivation to modify their teachings so as to use multi-stage polymers. The standard applied in the Advisory Action would make any polymer composition using known monomers obvious over any reference that mentioned polymerization of those monomers, because any such reference presumably would have "within the scope of [its] teaching" all possible polymers that could be prepared from the monomers. This standard is at odds with Federal Circuit precedent requiring that the references suggest the particular claim limitations or provide motivation to modify their teachings to produce the claimed invention.

Therefore, Appellants respectfully submit that the Office has not met its burden of demonstrating that the prior art suggests modification of its disclosures to produce the limitations of the claims.

(c) One Skilled in the Art Would Have Had No Reasonable Expectation of Success

A *prima facie* case of obviousness requires that one skilled in the art would have had a reasonable expectation of success in light of the prior art. *In re Dow Chemical*, 837 F.2d 469 (Fed. Cir. 1988). The Office has provided no evidence that one skilled in the art would have had a reasonable expectation that multi-stage polymers of the type recited in the present claims would function well as barrier compositions. First, as described in parts (a) and (b) above, the references simply do not suggest the claim limitations of the invention at all. Second, even if they had, there is nothing in the references that could suggest that the particular multi-stage polymers claimed by Appellants would be effective, and accordingly, the Office has not established a *prima facie* case of obviousness.

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(d) Applicants Have Obtained Unexpected Results

Even if the Office had established a *prima facie* case of obviousness, it could be overcome by a showing of unexpected results. *In re Soni*, 54 F.3d 746 (Fed. Cir. 1995). Appellants have disclosed in the present application (see Example 2, page 35) that multi-stage polymers within the scope of their claims have superior properties as barrier compositions, compared to single-stage polymers. Nothing in the references suggests that this result could have been obtained. Therefore, Appellants respectfully submit that the results presented in Example 2 were unexpected, and would refute a *prima facie* case of obviousness.

CONCLUSION

Based on the foregoing, Appellants respectfully submit that the pending claims are currently in condition for allowance. Appellants respectfully request the Board to pass the pending claims to allowance.

Enclosed herewith, Appellants have filed a Certificate of Mailing to establish the timely filing of this Appeal Brief.

The Commissioner is hereby authorized to charge any additional fee which may be required, or to credit any overpayments to Deposit Account 18-1850.

Respectfully submitted,



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(J) Claims Appendix

1. A triggered response barrier composition comprising: one or more multi-stage emulsion polymers that comprise (a) 70-99 weight percent of an alkali soluble/swellable emulsion polymer as a first stage; and (b) 1 to 30 weight percent of a more cross-linked alkali soluble/swellable emulsion polymer or a non-alkali soluble/swellable emulsion polymer as a second stage; wherein the multi-stage emulsion polymer surrounds, encapsulates or forms a matrix with one or more active ingredients and the multi-stage emulsion polymer disperses, disintegrates, dissolves, destabilizes, swells, deforms, softens, flows or combinations thereof, releasing the one or more active ingredients to an aqueous system as a result of a change in ionic strength of the aqueous system.
3. The triggered response barrier composition according to claim 1, wherein the aqueous system is a fabric washing or cleaning system and wherein the one or more active ingredients are selected from the group consisting of: fabric softeners, fabric softener formulations, cationic, anionic, amphoteric and non-ionic surfactants, fragrances and combinations thereof.
5. The triggered response barrier composition according to claim 1, wherein the multi-stage emulsion polymer first stage is prepared by polymerizing one or more monomers selected from the group consisting of: acrylic acid, methacrylic acid, ethyl acrylate, ethyl methacrylate, methyl methacrylate, 2-ethylhexyl acrylate, butyl acrylate, butyl methacrylate, 2-hydroxyethyl acrylate, 2-hydroxybutyl methacrylate; styrene, vinyltoluene, t-butylstyrene, isopropylstyrene, and p-chlorostyrene; vinyl acetate, vinyl butyrate, vinyl caprolate; acrylonitrile, methacrylonitrile, butadiene, acrylic or methacrylic acid esters of a C<sub>12</sub>-C<sub>24</sub> alkyl monoether of a polyalkylene glycol having from 6 to 70 oxyalkylene units, cetyl-stearyl(ethyleneoxide)<sub>20</sub> methacrylate and diallyl phthalate and wherein the multi-stage emulsion polymer second stage is prepared by polymerizing one or more monomers selected from the

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group consisting of: methylmethacrylate, styrene, allylmethacrylate, diallyl phthalate and butylene glycol diacrylate.

10. The triggered response barrier composition according to claim 1, having 80-95 weight percent of the alkali soluble/swellable emulsion polymer, which has 0.01-5 weight percent of one or more polyethylenically unsaturated monomer units; and 5-20 weight percent of the more cross-linked alkali soluble/swellable emulsion polymer, which has 0.1-10 weight percent of one or more polyethylenically unsaturated monomer units.



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**(K) Evidence Appendix**

No evidence was submitted during prosecution.

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**(L) Related Proceedings Appendix**

There are no related proceedings.